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NEWS

Understanding one of Europe's biggest climate drivers

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A new Met Office-led study – reviewing evidence from previous scientific papers and climate models – reveals natural patterns of weakening and strengthening of ocean currents which influence the UK's weather and climate.

In the North Atlantic lies one of the world's largest climate mechanisms: a system of currents transporting relatively warm water from the tropics to the poles, with return currents at depth transporting colder, denser water further south. The transport of heat to the North Atlantic keeps the UK's climate warmer than other locations at our latitude.

The so-called Gulf Stream is part of the wider circulation, known by climate scientists as AMOC: the Atlantic Meridional Overturning Circulation.

The study – published in Nature Reviews Earth and Environment today – shows that the AMOC doesn't remain at the same strength and the authors highlight recent variability in the strength over time and also along its path, with sub-polar and sub-tropical stretches operating on independent cycles.

The Met Office's Dr Laura Jackson is the paper's lead author. She said: "It is expected that ongoing climate change will weaken the AMOC. Although our study didn't detect a signal for long-term weakening, it is plausible that any change currently underway could be masked by the large variation between years and between decades. Any significant change would have a substantial effect on Europe's weather and climate."

The authors are calling for more research to improve monitoring of the AMOC and better distinguish ongoing changes from variations over years and decades.

The organisations involved with the study: GEOMAR (Germany), George Mason University (USA), IFremer (France), NOC (UK), NCAS (UK).

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